(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 September 2002 (26.09.2002)

PCT

(10) International Publication Number
WO 02/075453 A1

(51) International Patent Classification[7]: G03B 35/00, 35/02, H04N 13/02

(21) International Application Number: PCT/KR02/00053

(22) International Filing Date: 12 January 2002 (12.01.2002)

(25) Filing Language: Korean

(26) Publication Language: English

(30) Priority Data:
2001/2086 13 January 2001 (13.01.2001) KR

(71) Applicant and
(72) Inventor: KANG, Seung-Yeon [KR/KR]; 102 2-dong miju-apartment 16-1 Banpo2-Dong Seochò-Gu, 137-800 Seoul (KR).

(74) Agent: KIM, Eun-gu; Pedison International Patent and Law Office, 824-28(3F), Yoksam-Dong, Kangnam-GU, 135-080 Seoul (KR).

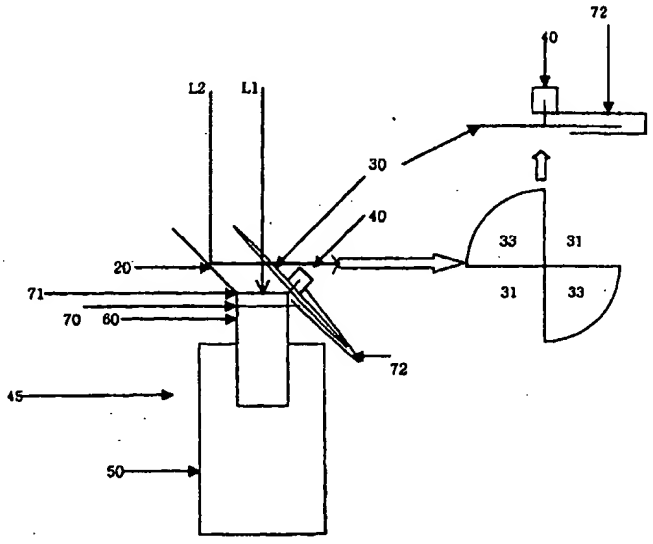
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A DEVICE FOR RECORDING THREE DIMENSIONAL VIDEO AND A MOVIE CAMERA



(57) Abstract: The present invention is related to a device for recording three dimensional video, and a movie camera which intend to allow recording of images in stereoscopic 3-D with a normal movie camera. These devices make it possible to record images in stereoscopic 3-D which have the same color and brightness of images recorded in stereoscopic 2-D.

WO 02/075453 A1

A DEVICE FOR RECORDING THREE DIMENSIONAL VIDEO AND A MOVIE CAMERA

TECHNICAL FIELD OF THE INVENTION

The present invention relates to a device for recording three dimensional (hereinafter, "3-D") video in the same brightness and color as in two dimensional stereoscopic video recording, by alternating incidences of the right side image and the left side image and a movie camera equipped with this 3-D stereoscopic video recording device.

BACKGROUND ART

A device has recently been developed that allows 3-D video recording with a single general video camera, which was only possible in conventional art in a clumsy way through two special stereoscopic movie cameras. This device utilizes a principle of the human sense of sight that a three-dimensional perception of an article bases on the perception of that article from different angles by our two (left and right) eyes located with a certain distance to each other. Such a video recording device comprises two different paths for light to enter, and functions by allowing alternate incidence of light through only one of the two paths. Currently, a device has been employed to embody the above principle, which, by repeating opening and closing the first path through an LC (liquid crystal) shutter, controls light to enter a mirror via the first path when the shutter is open, while it controls light to enter a mirror via the second path when the shutter is closed. However, a problem with this device is that ghost effect arises due to the color of the LC polarizing plate itself, the incomplete transmission, and the incomplete opening and closing of the LC shutter. Furthermore, since the applied half-mirror reduces the incident light to a half (ca.50%) of the given light, the image captured is darkened, and the image thus obtained is of low quality with noise even under a normal indoor light condition, which would generally allow a satisfactory ordinary video recording.

DETAILED DESCRIPTION OF THE INVENTION

The present invention, conceived to resolve the above problems of the conventional art, aims to provide a 3-D video recording device which can easily be attached to/detached from a conventional general video camera and allows 3-D video recording in the same brightness and color as a two dimensional video camera.

Another objective of the present invention is to provide a 3-D video recording device, which can substantially reduce fatigue of the eyes by preventing generation of ghost effect.

Still another objective of the present invention is to provide a video camera, to which the above 3-D video recording device can be attached in an integrated manner.

In order to achieve the above objectives, the present invention provides a 3-D video recording device to be attached to a video camera for recording of images received through the first and the second light paths, which are located with a predetermined distance from each other, comprising a reflex mirror, which reflects light entering the camera through the second light path in a predetermined angle to the axis of incidence of the above light; a rotating plate, which, having reflecting parts and opening parts of random number, is located parallel to the above reflecting mirror with a predetermined distance, and of which a part crosses the first light path when the plate rotates; a rotating means for rotating the above rotating plate; and a combination means, which is capable of combining the above reflecting mirror, the rotating plate, and the rotating means to one, and then finally attaching the same to a general video camera.

The above components of the 3-D video recording device may be sold and traded as combined by the above combining means, and then attached to the camera for use, or they may be sold and traded in separated status so that they are combined to constitute a 3-D video recording device and subsequently be attached to a video camera immediately prior to use.

The above rotating means of the above 3-D video recording device is generally a motor. The rotating speed of the motor is determined to control the alternating speed of the incident light entering through the two light paths in association with the number of the reflecting parts and the openings on the rotating

plate.

In an embodiment example of the present invention, the motor is set in such a manner that the rotating plate starts always from either an opening or a reflecting part, resulting in enhanced convenience in editing or viewing images.

Although the reflecting part of the above rotating plate is normally a mirror, it can also be made of any other material capable of totally reflecting the light. However, this material shall be non-light transmitting to ensure that the light entering from the rear side of the rotating plate through the first light path does not enter the object lens of the camera through the reflecting part, instead of the opening of the rotating plate. The number of the reflecting parts and the openings of the rotating plate can be determined freely in combination with the rotating speed of the motor in order to achieve a desired number of image alternations. Further, the rotating effect can be enhanced by evenly dividing the openings and the reflecting parts of the rotating plate diversely in accordance with the size of the object lens.

The above combination means is preferably connection rings, which allow the above reflecting mirror, the rotating plate, and the rotating means to be combined with each other, and then allow the detachable 3-D video recording device thus combined to be attached to a video camera, making a separate housing for the 3-D video recording device unnecessary. However, any additional housing may naturally be used for protection of the above components, e.g. the reflecting mirror, the rotating plate, and the rotating means, or for other needs.

Each of the rotating plate and the reflecting mirror of the above 3-D video recording device comprises preferably connection bars for connection to the corresponding connection ring.

The video camera, to which a 3-D video recording device as per the present invention is attached, needs not to be a special camera, but rather all general video camera currently in commercial trade can be used, since the construction and size of the combining part for a telephoto-lens, etc. of a general video camera is standardized.

The angle of the above reflecting mirror to the axis of incidence of the above light entering the object lens of the camera as well as the angle of the rotating plate to the axis of incidence of the above light shall be most frequently 45°. However, these angles may take also other values, provided that the light reflected

by the reflecting mirror enters the object lens of the camera in the same direction as that of the initial incidence after it has been re-reflected by the reflecting part of the rotating plate. Accordingly, if the reflecting mirror and the reflecting part of the rotating plate are parallel to each other, their angle can be varied in accordance with the shape, size, and construction of the video camera.

Although it would be ideal, in application of a 3-D video recording device as per the present invention, that both light entering through the first light path and light entering through the second light path maintain accurate angle to each other, there can be cases where an image entered through the first light path does not coincide with that entered through the second light path due to their different angles of incidence, resulting in a poor resolution. Accordingly, another embodiment of the present invention provides a 3-D video recording device, which allows to freely control the angle of the above reflecting mirror, enabling accurate focusing of the images.

The video camera attached with a 3-D video recording device in accordance with the present invention in an integrated manner, comprising a reflecting mirror, which reflects the light entering the camera through the second light path in a predetermined angle to the axis of incidence of the above light; a rotating plate, which, having reflecting parts and opening parts of random number, is located parallel to the above reflecting mirror with a predetermined distance, and of which a part crosses the first light path when the plate rotates; a rotating means for rotating the above rotating plate; and a camera body equipped with an object lens, wherein light from the second light path as reflected by the above reflecting mirror and the reflecting part of the rotating plate and light from the first light path passing through the above opening of the rotating plate are allowed to only alternately enter the object lens when the rotating plate is rotated by the above rotating means.

The construction and principle of operation of such video camera, as combined with the 3-D video recording device in accordance with the present invention, are in principle the same as those of the above 3-D video recording device.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1, being a simplified plane view of a video camera equipped with a 3-D

video recording device in accordance with an embodiment of the present invention, shows that light from the first light path enters the object lens of the camera through opening of the rotating plate, while light from the second light path is extinguished by opening of the rotating plate after having been reflected by the reflecting mirror.

Fig. 2 shows that, as the rotating plate in Fig. 1 rotates, light from the first light path extinguishes after it has been cut off by the rear part of the reflecting part of the rotating plate, while light from the second light path enters the object lens of the camera after having been reflected successively by the reflecting mirror and the reflecting part of the rotating plate.

Fig. 3, being a simplified plane view of the detachable 3-D video recording device in accordance with another embodiment of the present invention, shows a schematic construction of the combination of the reflecting mirror, the rotating plate, and the rotating means with each other.

Fig. 4 shows schematically how a 3-D video recording device as in Fig. 3 is combined with a general video camera.

Fig. 5a shows a reflecting mirror connection bar extended from the reflecting mirror as it is inserted into/combined with a connection ring that is combined with the thread groove of the object lens.

Fig. 5b shows a rotating plate connection bar extended from the rotating plate as it is inserted into/combined with a reflecting mirror connection bar in Fig. 5a.

Fig. 5c shows connection pins as they are inserted into the grooves formed in the rotating plate connection bar and in the reflecting mirror connection bar in Fig. 5b.

PREFERRED EMBODIMENTS OF THE INVENTION

The preferred embodiments of the present invention are described below in detail referring to the accompanying drawings.

Figs. 1 and 2, being simplified plane views of a video camera equipped with a 3-D video recording device (10) in accordance with an embodiment of the present

invention in an integrated manner, wherein Fig. 1 shows that light from the first light path (L1) enters the object lens of the camera through opening (31) of the rotating plate (30), while Figs. 2 shows that light from the second light path (L2) enters the object lens of the camera after having been reflected by the reflecting mirror (20) and the reflecting part (33) of the rotating plate (30).

Since conventional general products can be used for the camera body (50) and the object lens (60), and thus, the composition of those products are beyond the scope of the present invention, a detailed explanation thereof is omitted in this specification.

The drawing shows the reflecting mirror (20) as installed to the object lens (60) at one side (left side in the drawing) of the front part thereof in a predetermined angle to the axis of incident light. The reflecting mirror (20) is attached to the 3-D video recording device (10) or to a housing not illustrated in the drawing in an appropriate, publicly known manner. Further, the drawing shows that the rotating plate (30) connected to the motor (40) is installed at the opposite side of the front part of the object lens (60). Like the reflecting mirror (20), the rotating plate (30) is installed in a predetermined angle to the axis of incident light. The angle between the rotating plate (30) and the axis of incident light is the same as the angle between the reflecting mirror (20) and the axis of incident light, and these angles are both 45° in the present embodiment. Accordingly, the rotating plate (30) and the reflecting mirror (20) are located parallel, maintaining a certain distance to each other. The rotating plate (30) is located at a part other than the center so that it crosses the first light path (L1) in a predetermined angle (here, 45°). The distance between the rotating plate (30) and the reflecting mirror (20) shall preferably be about 6 ~ 7 cm, to allow the distance between the first light path (L1) and the second light path (L2) approximate to that between the two (left and right) human eyes. As illustrated in Figs. 1 and 2, the rotating plate (30) is divided into 4 even parts, of which two are mirrors (33), and the others are openings (31), each part placed in an alternate manner.

The rotating plate (30) is combined to a motor (40). A publicly known motor may be selected considering the construction, size, weight, rotation, etc. of the above device. The motor (40) can be attached to the housing (not illustrated) of the (3-D) video recording device (10) or to another part thereof, to rotate the rotating

plate (30). The number of rotation of the motor (40) may be determined appropriately, based on the number of the evenly divided openings (31) and reflecting parts (33) of the rotating plate (30), and other circumstances.

Figs. 3 through 5 show another embodiment of the present invention, wherein a detachable 3-D video recording device is illustrated in contrast to the 3-D video recording device described above, which is attached to a camera in an integrated manner. These drawings illustrate schematically the construction of combination of the 3-D video recording device (10) consisted of the above components to the video camera (45). Since the constructions of the reflecting mirror (20) and the rotating plate (30), etc. of the present embodiment are the same as those in Figs. 1 and 2, except for the method of attaching the 3-D video recording device (10) to the video camera (45), i.e. attachable and detachable, description in the following concentrates on this combining means.

A 3-D video recording device (10) of Fig. 3 is attached to a video camera by combining the reflecting mirror (20) and the rotating plate (30) to the video camera (45), using the combining ring (70), as illustrated in Fig. 4.

Since the threads on an object lens for a video camera are all standardized, allowing a combination in a same manner, a 3-D video recording device (10) of the present invention can easily be combined thereto. In other words, all lenses of a video camera are equipped with a thread groove to allow installation of a UV (ultra-violet) filter, a telegraphic-lens unit, etc. by a screw, whereby the diameters of which grooves are standardized.

As shown in Figs.3 through 5c, a combination proceeds in the following manner: First, the connection ring (70) is combined to the above groove by a screw. Then, the connection bars (71) of the reflecting mirror (20) are combined to the connection ring (70). Finally, the connection bars (72) of the rotating plate (30) are inserted into the grooves of the connection bars (71) of the reflecting mirror (20), to be subsequently be fixed by the connection pin (73). The connection ring (70), having holes formed scattered on its entire rim, is combined to the connection grooves of the two connection bars (71) extended from the upper edge and the lower edge of the reflecting mirror(20), respectively, at their inner grooves of the inner side (lens side) (cf. Fig. 5a). Subsequently, the connection bars (72) of the rotating plate (30) are fully inserted into the outer grooves formed at the outside of the

connection bars (71) of the reflecting mirror (20), and then, the holes (74, 75) of the connection bars (71, 72) are pierced by the connection pin (73) (Figs. 5b and 5c). Since the connection bars (71) of the reflecting mirror (20) and the connection bars (72) of the rotating plate (30) are fixed rectilinearly to remain horizontal as above, the rotating plate (30) and the reflecting mirror (20) maintain to be parallel to one another, keeping a certain distance to each other. The connection bars (72) of the rotating plate (30) support the motor (40), while the rotating plate (30) rotates combined to the axis of the motor (40).

The operation of the 3-D video recording device (10) in accordance with an embodiment of the present invention is described below making reference to Figs. 1 and 2, which description applies not only to a detachable 3-D video recording device (10), but also to a video camera (45) combined with the 3-D video recording device in an integrated manner.

Referring to Fig. 1, if video recording commences, the motor (40) begins to rotate, whereupon the rotating plate (30) combined to that motor also starts to rotate. Light enters the object lens (60), initially through both the first (L1) and the second (L2) light paths. However, at the time when the opening (31) of the rotating plate (30) is placed on the first light path (L1), light from the first light path (L1) enters the object lens (60) through the opening (31), while light from the second light path (L2) is reflected by the reflecting mirror (20) and passes through the opening (31) in a direction rectangular to the axis of the incident light, without entering the object lens (60).

Referring to Fig. 2, at the time when the mirror (33) of the rotating plate (30) is placed on the first light path (L1) in the course of further rotating of the motor (40), light from the first light path (L1) reaches the rear side of the mirror (33) of the rotating plate (30) to be either absorbed, or reflected or dispersed to a direction other than the object lens (60); while light from the second light path (L2) is reflected by the reflecting mirror (20) to make a 90° turn in direction to the mirror (33) of the rotating plate (30), then reflected further by this mirror (33) to make anew a 90°turn, and finally enters the object lens (60), recovering the same direction as that of the initial incidence.

By repeating the above operation, the camera body (50) can easily obtain continuous images from the first light path(L1) and the second light path(L2) in an

alternate manner.

Although the present invention has been described above with respect to the preferred embodiments, the scope of rights of the present invention is not limited thereto, but rather shall be determined by the appended claims, allowing various modifications, changes, adaptations, etc. within the spirit of the present invention, as those skilled in the art can understand.

Thus, for example, the distance between the left sight angle and the right sight angle can be adjusted by manipulating the angle of the reflecting mirror (20). Here, the angle of the reflecting mirror (20) can be manipulated either manually, or by a separate angle manipulation device.

Further, the angle of image can be adjusted by forming the reflecting part (33) of the rotating plate (30) in a concave mirror, and by forming the opening (31) of the rotating plate (30) is form in concave lenses, and the object lens (60) of the camera (45) in a convex lens or a combined lens, which adjusting method could be embodied using a customary optical technology, e.g. the angle of incident image through the first light path can first be widened by forming the opening (31) of the rotating plate (30) in a concave lens, and subsequently be narrowed through a convex lens or a combined lens attached at the front part of the object lens (60) of the camera (45), so that the incident image enters the camera in a concentrated manner. Such adjusting of the image angle has the merit of contributing to reduce size of the 3-D video recording device. However, to ensure that the ratio of image entered through the second light path and image entered through the first light path remains the same in a reduced image, concave mirror of appropriate type and correct magnification shall be used for the above reflecting mirror (20) or the above reflecting part (33) of the rotating plate (30).

INDUSTRIAL APLICABILITY

As described above, a 3-D video recording device in accordance with the present invention allows 3-D video recording in brightness and color not inferior to an image taken by a 2-D video camera under the same light condition.

Furthermore, a 3-D video recording device in accordance with the present invention, by entirely opening or closing to images that enter alternately from the

left side or the right side, can cleanly resolve the ghost problem.

Finally, a 3-D video recording device in accordance with the present invention, being easily attachable to or detachable from a 2-D video camera, allows 3-D video recording with a general 2-D video camera currently in widespread use.

5

WHAT IS CLAIMED IS:

1. A 3-D video recording device to be attached to a video camera for recording of images received through the first and the second light paths, which paths are located with a predetermined distance from each other, comprising:

a reflecting mirror, which reflects light entering said camera through said second light path in a predetermined angle to the axis of incidence of said light;

a rotating plate, which, having reflecting parts and opening parts of random number, is located parallel to said reflecting mirror with a predetermined distance, and of which a part crosses said first light path when said rotating plate rotates;

a rotating means for rotating said rotating plate; and

a combination means, which is capable of combining said reflecting mirror, said rotating plate, and said rotating means to one, and then finally attaching the same to a general video camera.

2. The 3-D video recording device as set forth in Claim 1, wherein said combining means comprises:

a connection ring to be combined to the rim of the object lens of said video camera;

two reflecting mirror connection bars which are extended from the reflecting mirror, having inner grooves formed for insertion in/combination with said combination ring, and outer grooves to allow insertion in/combination with by the rotating plate connection bars stated below; and

two rotating plate connection bars which are extended from said rotating plate, and are inserted in/combined with said outer grooves of said reflecting mirror connection bars;

whereby said combination means enable said reflecting mirror and said rotating plate to be attached to /detached from said video camera.

3. The 3-D video recording device as set forth in Claim 1 or Claim 2, wherein the angle between said reflecting mirror and the axis of incident light as well as that between said rotating plate and the axis of incident light are 45°.

4. The 3-D video recording device as set forth in Claim 1 or Claim 2, wherein each of the number of the openings and the reflecting parts of said rotating plate is two.

5. The 3-D video recording device as set forth in Claim 1 or Claim 2, wherein said rotating means is a motor, whereby the rotation speed of said rotating plate is controlled by manipulation of said motor.

6. The 3-D video recording device as set forth in Claim 1 or Claim 2, wherein the distance between said reflecting mirror and said rotating plate is ca. 6 to 7 cm.

7. The 3-D video recording device as set forth in Claim 1, wherein the angle of said reflecting mirror is freely adjustable, so that the image entering through said first light path is focused with that entering through said second light path.

8. The 3-D video recording device as set forth in Claim 1 or Claim 2, wherein said motor is set in such a manner that rotation of said rotating plate starts always from a predetermined part thereof.

9. A video camera attached with a 3-D video recording device in accordance with the present invention in an integrated manner, comprising:

a reflecting mirror, which reflects light entering through the second light path in a predetermined angle to the axis of incidence of said light;

a rotating plate, which, having reflecting parts and opening parts of random number, is located parallel to said reflecting mirror with a predetermined distance, and of which a part crosses said first light path when said rotating plate rotates;

a rotating means for rotating said rotating plate; and

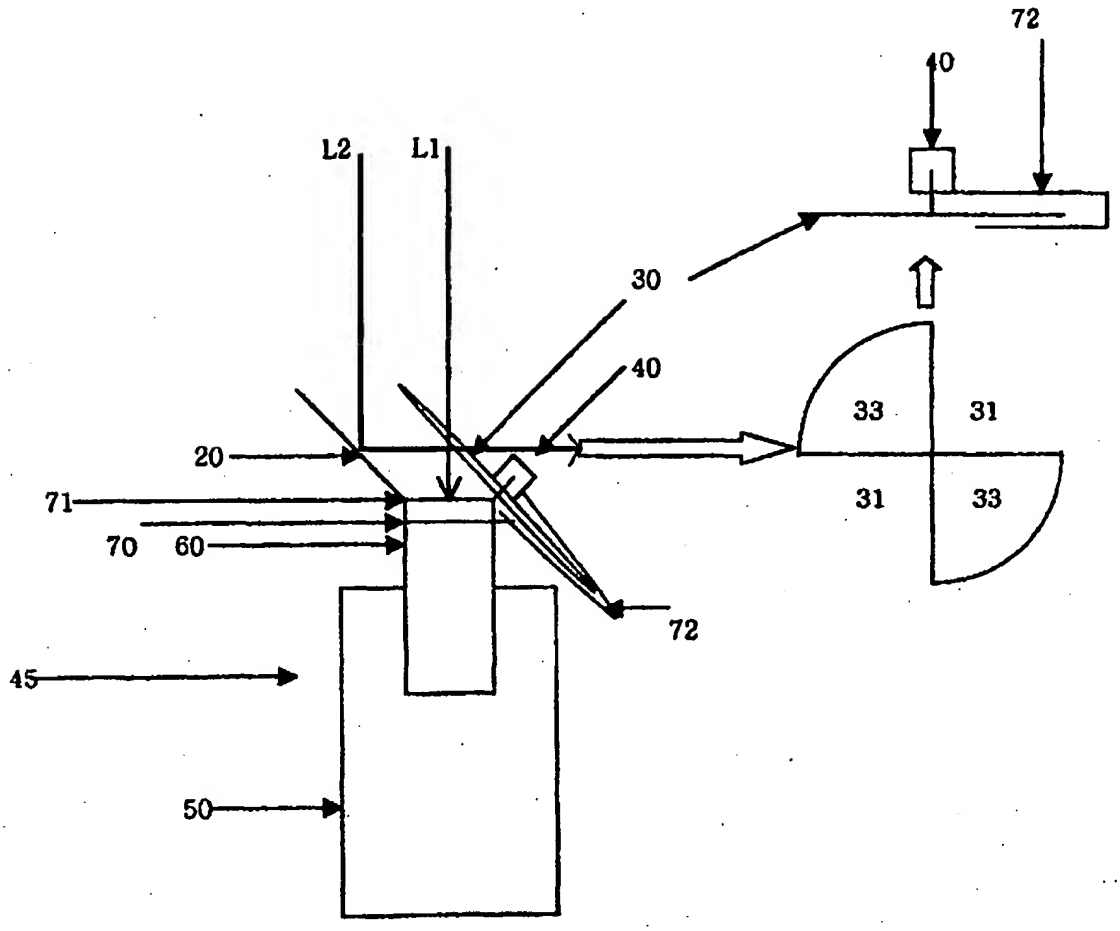
a camera body equipped with an object lens,

wherein light from said second light path as reflected by said reflecting mirror and said reflecting part of said rotating plate and light from said first light path passing through said opening of said rotating plate are allowed to only alternately enter said object lens when said rotating plate is rotated by said rotating

means.

10. The 3-D video recording device as set forth in Claim 9, wherein the reflecting parts of said rotating plate are concave, and the openings of said rotating plate are formed in concave lenses or combined lenses, and then convex lenses or combined lenses are attached to the front part of said object lens.

FIG 1



2/5

FIG 2

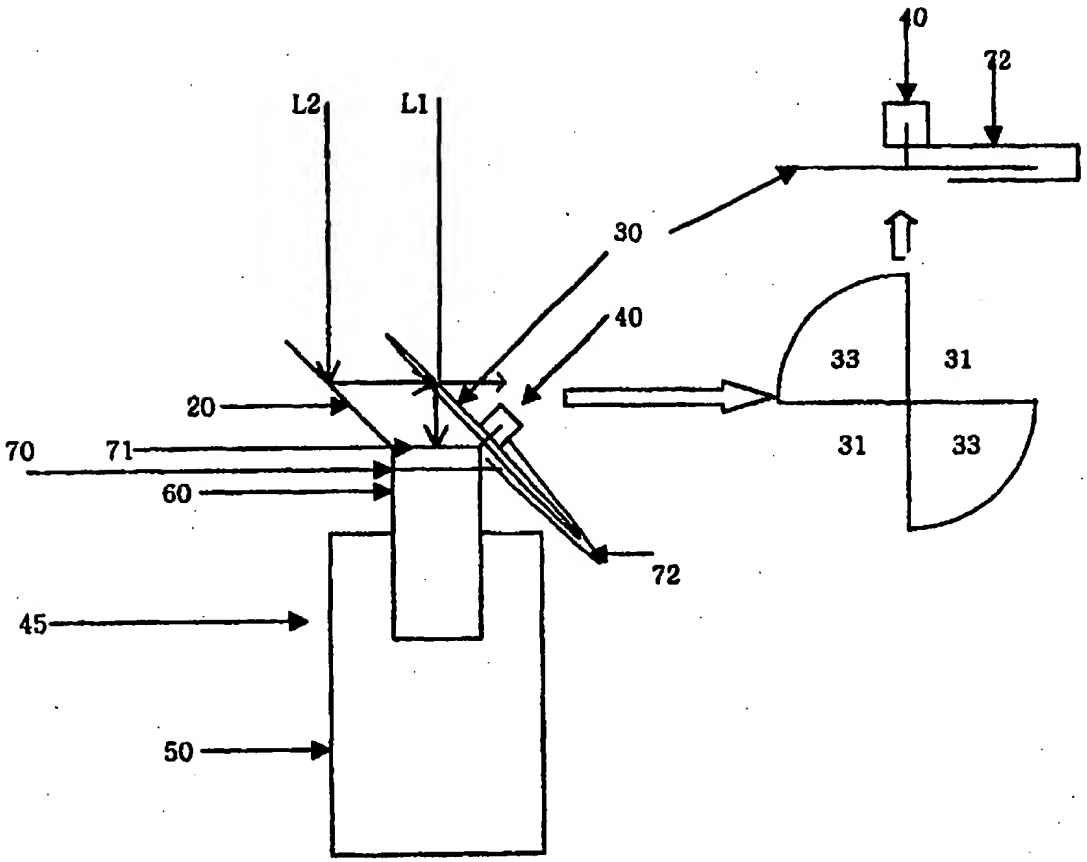


FIG 3

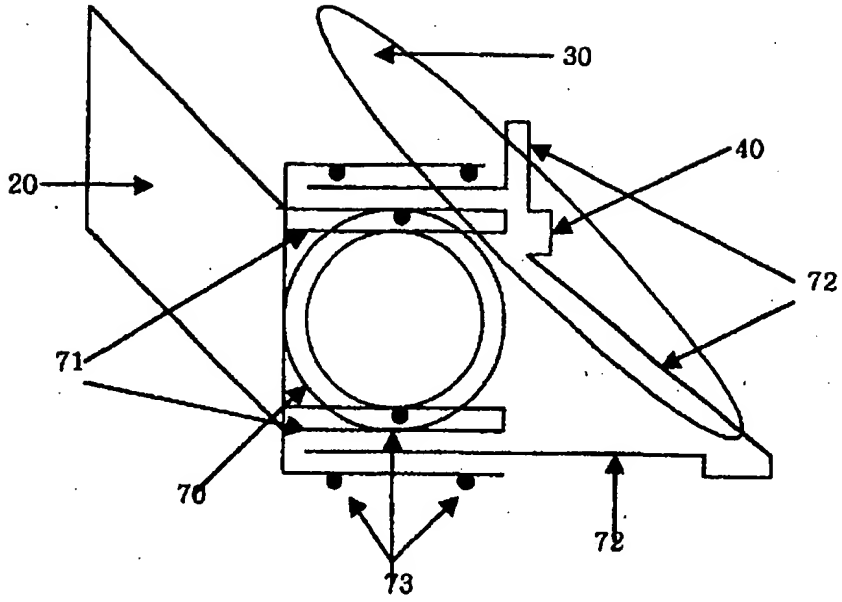


FIG 4

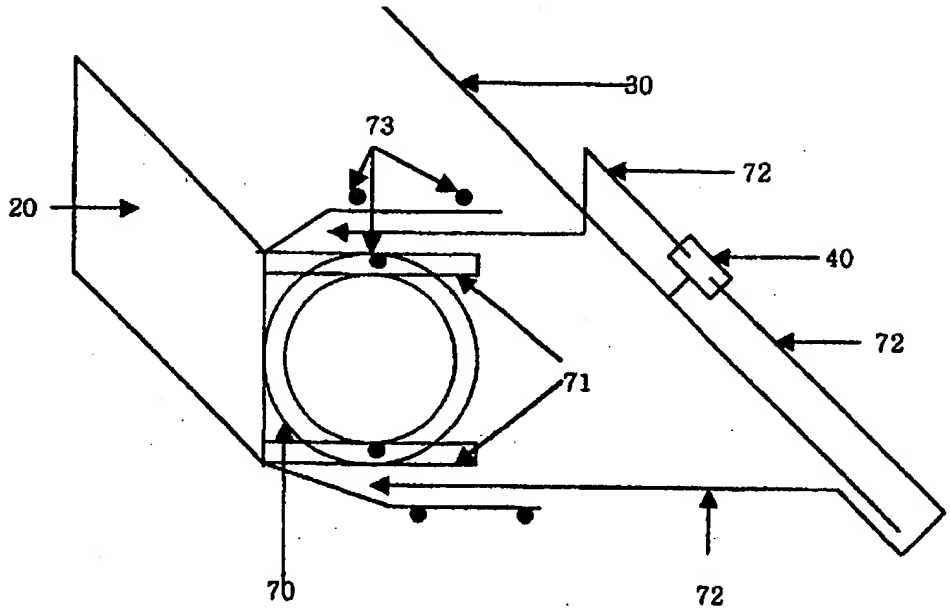


FIG 5a

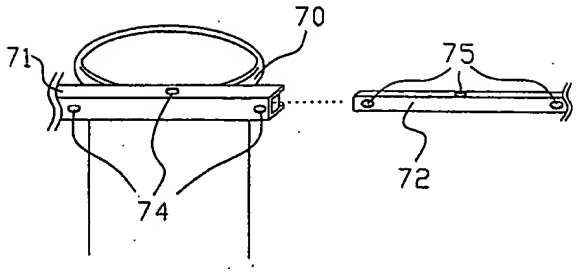


FIG 5b

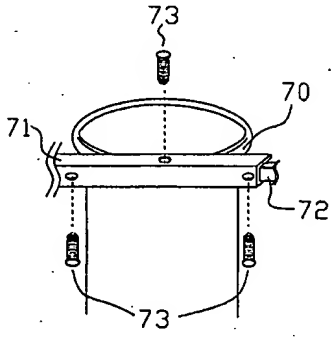
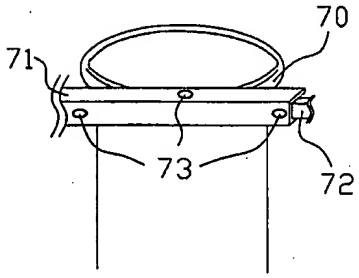


FIG 5c



INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR02/00053

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 G03B 35/00, G03B 35/02, H04N 13/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 G03B 35/00, G03B 35/02, H04N 13/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975, Korean Utility models and applications for utility models since 1975
Japanese Patents and applications for inventions since 1975, Japanese Utility models and applications for utility models since 1975

Electronic data base consulted during the intertnational search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR93-0020212 A (Lee Insun) 19 October 1993 see the whole document (for detail description, see the description in the application file)	1,2,3,4,5,8,9
Y	P62-291292 A (SHARP CORP) 18 December 1987 see the whole document	1,2,3,4,5,8,9
Y	KR89-14108 U (Pak Yong-gwi) 10 August 1989 claim and Fig1 to 2	2

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevence
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevence; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 APRIL 2002 (22.04.2002)	23 APRIL 2002 (23.04.2002)

Name and mailing address of the ISA/KR	Authorized officer
Korean Intellectual Property Office Government Complex-Daejeon, 920 Dunsan-dong, Seo-gu, Daejeon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	NAMGUNG, Yong Telephone No. 82-42-481-5503

Form PCT/ISA/210 (second sheet) (July 1998)